

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application.

COMPLETE LISTING OF THE CLAIMS:

Claims 1-21 : (Canceled)

Claim 22 : (New) An apparatus for applying a coating of positive ions to a substrate having a coating area to be coated, the apparatus comprising:

- a) a vacuum chamber;
- b) a holder in the vacuum chamber for supporting the substrate;
- c) a filtered cathodic arc source for directing a plasma beam containing the positive ions toward the substrate, the plasma beam having a cross-sectional beam area on the substrate which is smaller than the coating area on the substrate, said cathodic arc source including a duct having two bends, one of the bends lying in a first plane, and the other of the bends lying in a second plane which is not coincident with the first plane; and
- d) scanning means for moving the beam in a raster scan across the substrate to coat the coating area.

Claim 23 : (New) The apparatus of claim 22, wherein the holder is a rotary drum for moving the substrate relative to the beam.

Claim 24 : (New) The apparatus of claim 23, wherein the substrate is mounted on a peripheral surface of the drum.

Claim 25 : (New) The apparatus of claim 22, wherein the holder is movable, and further comprising a plurality of additional substrates mounted on the movable holder.

Claim 26 : (New) The apparatus of claim 22, wherein the scanning means is operative for generating a magnetic field for moving the beam at one scanning frequency in a first one of two mutually orthogonal directions, and at another scanning frequency in the other of the directions.

Claim 27 : (New) The apparatus of claim 26, wherein each scanning frequency lies in a range of 2-100 Hz.

Claim 28 : (New) The apparatus of claim 22; and further comprising an additional filtered cathodic arc source for directing an additional plasma beam toward the substrate, the additional plasma beam having a cross-sectional additional beam area on the substrate which is smaller than the coating area on the substrate; and an additional scanning means for moving the additional beam in a raster scan across the coating to coat the coating area on the substrate with an additional coating.

Claim 29 : (New) The apparatus of claim 22, wherein the cathodic arc source includes an interchangeable cathode.

Claim 30 : (New) The apparatus of claim 22; and further comprising means for applying an electrical bias to the substrate.

Claim 31 : (New) The apparatus of claim 30, wherein the bias is a DC voltage.

Claim 32 : (New) The apparatus of claim 30, wherein the bias is an RF signal.

Claim 33 : (New) The apparatus of claim 22, wherein the substrate is a dielectric substrate; said apparatus further comprising means for applying a radio frequency bias to the dielectric substrate to dissipate electrostatic charge accruing during coating of the coated area.

Claim 34 : (New) The apparatus of claim 33, wherein the dielectric substrate is an optical element.

Claim 35 : (New) An apparatus for applying a coating of positive ions to a plurality of substrates each substrate having a coating area to be coated, the apparatus comprising:

- a) a vacuum chamber;
- b) a holder in the vacuum chamber for supporting the plurality of substrates;
- c) a plurality of filtered cathodic arc sources for directing respective plasma beams each containing the positive ions towards the substrates, each plasma beam having a cross-sectional beam area on a respective substrate which is smaller than a respective coating area on the respective substrate, each of said cathodic arc sources including a duct having two bends, one of the bends in each duct lying in a first plane pertaining to that duct, and the other of the bends lying in a second plane which pertains to that duct and is not coincident with the first plane pertaining to that duct;
- d) scanning means for moving the beams in respective raster scans across the substrates to coat the respective coating areas of the substrates; and
- e) drive means for moving the holder relative to the beams.

Claim 36 : (New) The apparatus of claim 35, wherein the apparatus includes means for simultaneously operating the plurality of arc sources.

Claim 37 : (New) An apparatus for applying a coating of positive ions to a substrate having a coating area to be coated, the apparatus comprising:

- a) a vacuum chamber;
- b) a holder in the vacuum chamber for supporting the substrate;
- c) a filtered cathodic arc source for directing a plasma beam containing the positive ions toward the substrate, the plasma beam having a cross-sectional beam area on the substrate which is smaller than the coating area on the substrate, said cathodic arc source including a duct having first and second bends, and a straight section between the bends, the bends preventing a line of sight from the cathodic arc source to the substrate and preventing also a single bounce path from said source to said substrate;
- d) scanning means for moving the beam in a raster scan across the substrate to coat the coating area on the substrate; and
- e) drive means for moving the holder relative to the beam.

Claim 38 : (New) An apparatus for applying a coating of positive ions to a substrate having a coating area to be coated, the apparatus comprising:

- a) a vacuum chamber;
- b) a holder in the vacuum chamber for supporting the substrate;
- c) a cathode arc source for directing a plasma beam containing the positive ions towards the substrate, the cathode arc source including a duct having first and second

bends, and a straight section between the bends, the bends preventing a line of sight and a single bounce path from the cathode arc source to the substrate; and

d) scanning means comprising means for scanning the beam in a y-axis, and means for scanning the beam in an x-axis across the substrate to coat the coating area.

Claim 39 : (New) The apparatus according to claim 38, wherein the scanning means is operative for generating magnetic fields for moving the beam at a scanning frequency of from 2-100Hz in the y-axis and at a frequency of from 2-100Hz in the x-axis.

Claim 40 : (New) The apparatus according to claim 38, wherein the first and second bends lie in non-coincident planes.